# ABSTRACT

**Stability studies of monoclonal antibody nimotuzumab modified with chelator DTPA radiolabelled with lutetium-177 ([177Lu]Lu-hR3(p-SCN-Bn)DTPA)**

Diploma thesis

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In this work was target to study the stability of monoclonal antibody Nimotuzumab, which was modified with chelator DTPA radiolabelled with radioactive Lutetium-177 ([177Lu] Lu-hR3 (p-SCN-Bn) DTPA). The radiochemical purity of the supplied antibody was 61%. For other uses had to purified.

The chelator EDTA adds in addition for the labeled antibody. It has lower stability constant than the original chelating agent. He can catch the free ligand, which is excreted through the kidneys. For biodistribution studies is needed to ensure the highest purity that was well described by the distribution of radiopharmaceuticals in small bodies. Purification was used for gel permeation chromatography Sephadex. Purity was about 99%.

HPLC analysis after one hour showed a small percentage of low molecular weight forms. It may be modified ligand with radionuclide or free radionuclide. At times long after purification the HPLC profile of low molecular weight fraction appeared in two peaks. They are therefore both options possible. The stability of the complex Lu-DTPA is relatively low. This chelating agent is used rather with isotopes of indium, which make more stable complex. Is mentioned that for the isotopes of yttrium or radiolanthanoids is preferable modification by DOTA. Between chelate and metal is formed stronger complex.